

CLAIMS:

1 1. A circuit to determine a velocity of a coil to
2 which a driving current is applied in a magnetic field,
3 comprising:

4 a circuit to terminate the driving current in said
5 coil;

6 a circuit to apply a current to said coil to create a
7 magnetic field to oppose eddy currents established in
8 structures adjacent said coil by said driving current; and

9 a circuit for measuring a BEMF in said coil after said
10 current has been applied to oppose said eddy currents.

1 2. The circuit of claim 1 wherein said driving current
2 is in a first direction in said coil, and wherein said
3 circuit to apply a current to said coil applies a current
4 in a direction opposite said first direction.

1 3. The circuit of claim 1 wherein said circuit to
2 apply a current to said coil applies a current for a time
3 directly related to a time that a flyback current appears
4 in said coil above a predetermined magnitude after said
5 driving current has been terminated.

1 4. The circuit of claim 1 wherein said circuit to
2 apply a current to said coil applies a current for a time
3 directly related to a magnitude of the original current
4 command after said driving current has been terminated.

1 5. The circuit of claim 1 wherein said circuit to
2 apply a current to said coil applies a current for a time
3 directly related to a magnitude of said driving current
4 prior to when said driving current has been terminated.

1 6. The circuit of claim 1 further comprising a delay
2 element to delay the termination of the eddy current
3 opposing current for a predetermined time.

1 7. A circuit to determine a BEMF voltage of a VCM coil
2 after termination of a driving current in a first current
3 direction in said coil, comprising:

4 a circuit for activating selected VCM coil driver
5 transistors to apply a current to said coil in a direction
6 opposite said first current direction to generate a
7 magnetic field to oppose eddy currents established in
8 structures adjacent said coil by said driving current.

1 8. The circuit of claim 7 wherein said circuit for
2 activating selected VCM coil driver transistors applies
3 said current to said coil for a time directly related to a
4 time that a flyback current appears in said coil above a
5 predetermined magnitude after said driving current in said
6 first direction has been terminated.

1 9. The circuit of claim 7 wherein said circuit for
2 activating selected VCM coil driver transistors applies
3 said current to said coil for a time directly related to a
4 magnitude of the original current command after said
5 driving current in said first direction has been
6 terminated.

1 10. The circuit of claim 7 wherein said circuit for
2 activating selected VCM coil driver transistors applies
3 said current to said coil for a time directly related to a

4 magnitude of said driving current prior to when said
5 ~~driving current has been terminated.~~

1 11. The circuit of claim 7 further comprising a delay
2 ~~element to delay the termination of the eddy current~~
3 ~~opposing current for a predetermined time.~~

1 12. A circuit for use in determining a velocity of a
2 head assembly of a VCM after termination of a driving
3 current in a coil of said VCM, comprising:

4 a circuit for activating selected VCM coil driver
5 transistors to apply a current to said coil of said VCM to
6 create a magnetic field that opposes eddy currents
7 established in structures adjacent said coil by said
8 driving current.

1 13. The circuit of claim 12 wherein said driving
2 current is in a first current direction and wherein said
3 circuit for activating selected VCM coil driver transistors
4 applies a current to said coil in a direction opposite said
5 first current direction.

1 14. The circuit of claim 12 wherein said circuit for
2 activating selected VCM coil driver transistors applies a
3 current to said coil for a time directly related to a time
4 that a flyback current appears in said coil above a
5 predetermined magnitude after said driving current has been
6 terminated.

1 15. The circuit of claim 12 wherein said circuit for
2 activating selected VCM coil driver transistors applies a
3 current to said coil for a time directly related to a

4 magnitude of the original current command after said
5 driving current has been terminated.

1 16. The circuit of claim 12 wherein said circuit for
2 activating selected VCM coil driver transistors applies a
3 current to said coil for a time directly related to a
4 magnitude of said driving current prior to when said
5 driving current has been terminated.

1 17. The circuit of claim 12 further comprising a delay
2 ~~element to delay the termination of the eddy current~~
3 opposing current for a predetermined time.

1 18. A method for determining a velocity of a coil to
2 which a driving current is applied in a magnetic field,
3 comprising:

4 terminating said driving current;

5 allowing a flyback current in said coil to reduce to
6 below a predetermined magnitude;

7 applying a current to said coil of magnitude and
8 direction to cancel eddy currents in structures adjacent
9 said coil; and

10 measuring a BEMF in said coil, wherein a magnitude of
11 said BEMF is directly related to the velocity of said coil.

1 19. The method of claim 18 wherein said applying a
2 current to said coil comprises applying a current to said
3 coil a time directly related to a magnitude of the original
4 current command.

1 20. The method of claim 18 wherein said applying a
2 current to said coil comprises applying a current to said
3 coil in a direction opposite said driving current.

1 21. The method of claim 18 wherein said applying a
2 current to said coil comprises applying a current to said
3 coil for a time directly related to a time for said flyback
4 current to reduce to below a predetermined magnitude.

1 22. The method of claim 18 wherein said applying a
2 current to said coil comprises applying a current to said
3 coil a time directly related to a magnitude of said driving
4 current.

1 23. A method for determining a BEMF voltage of a coil
2 of a VCM after termination of a driving current in said
3 coil, comprising:

4 determining when said driving current has been
5 terminated; and

6 activating selected VCM coil driver transistors to
7 apply a current to said coil to create a magnetic field to
8 oppose eddy currents established in structures adjacent
9 said coil by said driving current.

1 24. The method of claim 23 wherein said driving
2 current is in a first current direction, and wherein said
3 activating selected VCM coil driver transistors comprises
4 activating selected VCM coil driver transistors to create a
5 current in said coil in a direction opposite to said first
6 current direction.

1 25. The method of claim 23 wherein said activating
2 selected VCM coil driver transistors comprises activating
3 selected VCM coil driver transistors for a time directly
4 related to a magnitude of the original current command
5 voltage when said driving current is terminated.

1 26. The method of claim 23 wherein said activating
2 selected VCM coil driver transistors comprises activating
3 selected VCM coil driver transistors for a time directly
4 related to a time that said flyback current is above a
5 predetermined magnitude after said driving current has been
6 terminated.

1 27. The method of claim 23 wherein said activating
2 selected VCM coil driver transistors comprises activating
3 selected VCM coil driver transistors for a time directly
4 related to a magnitude of said driving current prior to
5 when said driving current has been terminated.